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ABSTRACT

This practicum was designed to provide more comprehensive access to current and relevant information for students and teachers in an elementary school for curricular augmentation, research, and classroom projects. The printed materials and electronic databases in the library (media center) did not have the information needed because of their age, scarcity, or insufficient subject matter. Teachers and students needed to learn how to access and use the Internet to find information. An Internet training program was developed for both teachers and students at the elementary level. Weekly lessons in the library instructed teachers and students on the basics of the Internet, conducting an effective search, validating found information, augmenting the curriculum with this information, and locating current and relevant information for classroom projects and research. Analysis of the data revealed that both teachers and students were more likely to use the Internet after an extensive training program. All teachers and students showed a marked increase in Internet usage throughout the training program. The most important element in increasing Internet usage among teachers was the continuous, ongoing support they received throughout the training. This support lessened the anxiety most teachers experience after training. Subsequently, they are utilizing the Internet for curricular augmentation regularly. (Contains 53 references.) (DLS)

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ED 429 557

Increasing Internet Usage Among Teachers and Students for Information Retrieval and Curricular Augmentation through Ongoing Training and Support

by
Ruth Hubbard
Cluster 74

A Practicum II Report Presented to
the Ed.D. Program in Child and Youth Studies
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Education

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Nova Southeastern University
1998

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PRACTICUM APPROVAL PAGE

This practicum took place as described

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December 18, 1998
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This practicum report was submitted by Ruth M. Hubbard under the direction of the advisor listed below. It was submitted to the Ed.D. Program in Child and Youth Studies and approved in partial fulfillment of the requirements for the degree of Doctor of Education at Nova Southeastern University.

Approved:

Date of Final Approval of Report

Mitzi K. Burden, Ed D., Advisor

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Abstract

Increasing Internet Usage Among Teachers and Students for Informational Retrieval and Curricular Augmentation through Ongoing Training and Support. Hubbard, Ruth M., 1998: Practicum Report, Nova Southeastern University, Ed.D. Program in Child and Youth Studies. Internet Usage/Information Retrieval/Online Services/Computer Literacy/Information Retrieval Skills/Acceptable Use Policies/Curricular Augmentation/Problem Solving/Engaged Learning/Staff Development

This practicum was designed to provide a more comprehensive access to current and relevant information for the students and teachers in an elementary school for curricular augmentation, research and classroom projects. The printed materials and electronic databases in the library (media center) did not have the information needed because of their age, scarcity, or insufficient subject matter. Both teachers and students needed to learn how to access and use the Internet to find current and relevant information for curricular augmentation, classroom projects and research.

The writer developed an Internet training program for both teachers and students at the elementary level. Weekly lessons in the library instructed teachers and students on the basics of the Internet, conducting an effective search, validating found information, augmenting the curriculum with this found information, and locating current and relevant information for classroom projects and research.

An analysis of the data revealed that both the teachers and the students were more likely to use the Internet after an extensive training program. All teachers and students showed a marked increase in Internet usage throughout the training program. The most important element in increasing Internet usage among the teachers was the continuous, ongoing support they received throughout the training. This support lessened the anxiety most teachers experience after training. Subsequently, they are utilizing the Internet for curricular augmentation regularly.

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Chapter I: Introduction

Description of Community

The practicum took place in a small rural midwestern community of 19,000. The community is located 45 miles from a major metropolitan area. Residents commute to this large city for work, recreation, cultural activities. Job opportunities, recreation, and cultural amenities are limited, forcing residents to rely upon the major metropolitan city for furtherance in these areas.

The community is predominately middle class, of which 96.9% are white. Blacks, Hispanics, Asian, Pacific Islander, and Native Americans comprise the remaining 3.1%. Of this minority, Hispanics are the dominant race (Northern Illinois Planning Commission, 1990).

According to the 1990 census, the population of the community is 16, 177. The current estimate is 18, 998 (Illinois Department of Community Profile).

The mean income of the residents is $23,889 with a median age of 32.1. Fifty percent of the residents have advanced schooling beyond high school, with 5% attaining a graduate or advanced degree (Northern Illinois Planning Commission, 1990).

The county in which the rural community is located is experiencing rapid growth. It is the fastest growing county in the nation according to a special census conducted in July, 1993. This community is fast becoming urbanized, since most of the newcomers emigrate from suburban areas and the near-by metropolitan city.

Due to this influx of people, the community is experiencing a period of rapid housing growth. Building of homes is at an all-time high, but little revenue is going to the school district to provide for additional students. State education funding is decreasing, placing the majority of funding on the individual homeowner. The

decreasing, placing the majority of funding on the individual homeowner. The homeowners feel overburdened with these high taxes and repeatedly vote down school referenda. Keeping property taxes low, even at the cost of providing quality education, is the priority of the homeowner. The result is deteriorating school buildings, over-crowded classrooms, portable mobile classrooms, and below average per pupil expenditure.

Writer's Work Setting

The writer works in an elementary district comprised of 5 elementary and 2 middle schools. It has a total enrollment of 4, 501students and a teaching staff of 236.

The writer's school consists of Grades 1 through 5. It is comprised of 680 regular education, 45 special needs students, and a faculty of 41. The special needs students are integrated into the regular education curriculum in a least restrictive environment.

The mission statement of the school :

> a school with a public ready to accept a new vision of education, to challenge students to continually set higher levels of achievement-to reach beyond their potential-by getting all segments of the school to join us in the problem solving process and by utilizing all available resources and technologies toward achieving this end.

The vision statement is to incorporate all aspects of technology into the curriculum while engaging the student in learning. The focus is to become an engaged learner through problem solving and incorporating the Internet into the curriculum.

The majority of the teaching staff do not have a master's degree. The district promotes further education by aligning itself with consortiums around the area, but offers the teachers no financial incentives to pursue a master's degree.

There has been an influx of students in the past year, and the school is reaching maximum capacity. Due to this influx , the classrooms are very crowded; the average class size is 27.4 with a student-teacher ration of 25.4:1, while the district average class size is 23.7 with a student-teacher ratio of 22.4:1. Every available space has been converted into a classroom or an office, leaving no room for expansion.

The school has a large population of low-income and limited-English-proficient students; 4% more than the district average. This large population requires additional services, such as free or reduced lunch, Title I programs, English as a Second Language (ESL) and special education programs. With this population has also come an increased mobility rate, 10% greater than the district average.

The writer's school houses a special education wing, consisting of four classrooms. Forty-five students with behavior and communication disorders, as well as academically and physically-challenged students receive services in these classrooms. The special needs students are also included in the regular education curriculum in a least-restrictive manner. The inclusion of these 45 special education students into regular education puts a further strain on the school by making classes even more crowded.

Due to the over-crowded conditions, staff is experiencing a morale problem. Day-to-day operations are putting a strain on everyone and is shown through low morale and non-acceptance of new innovations, including technology.

Writer's Role

The writer's dual role as a librarian and a systems operator is very diverse. As a librarian, the writer is responsible for the acquisitions, repairs, curriculum development, and teaching of library skills. All students, regular and special education, are serviced by the librarian. The students are scheduled in the library

one-half hour per week, for a total of 29 scheduled classes per week. During this time, students either check in and out books, listen to a story, or learn library skills. In addition to the scheduled classes, the writer is in charge of the ordering and cataloging of media, books, and software. A major portion of the day is spent on the organization, maintenance, and distribution of these library materials.

The library is fully automated with an on-line circulation and card catalog system. This on-line card catalog is available in all the networked classrooms and is widely used by both teachers and students. The availability of a book can be checked on in the classroom and then the book can be checked out in the library. This is a great time-saver since the library staff consists of only the writer who cannot adequately service all requests.

As a systems operator, the writer is responsible for setting up and maintaining the network, as well as teaching computer courses to staff throughout the district. The effective and efficient use of the computers and their applications is the key element of this position. Basic troubleshooting takes up a disproportionate part of the writer's day, and the previously mentioned library duties suffer.

Staff and students rely heavily upon the writer to provide adequate materials for research. Due to the low tax base and inadequate state funding, the writer cannot afford to purchase current and relevant books needed for classroom research and curricular augmentation. The on-line reference encyclopedia is outdated and does not provide current information.

The practicum will allow the writer to realize the school's vision statement of incorporating technology into the curriculum and engaging the students in their own learning through problem solving and research. In the writer's capacity as a librarian and systems operator, it is her responsibility to introduce the teachers and fourth and fifth grade students to the Internet. Through this practicum, they will become engaged learners and utilize the Internet for curricular augmentation,

classroom projects and research.

Chapter II: Study of the Problem

Problem Statement

The problem addressed by this practicum was that the teachers and students in the writer's school did not use the Internet to locate current and relevant information.

Problem Description

The teachers and students were not utilizing the Internet for accession to current and relevant information that was needed for curricular enhancement. The students were not accessing the Internet to find information that was necessary for the research and completion of their classroom projects. They relied upon out-dated library books and an inadequate electronic encyclopedia (c.1992) for their information.

Problem Documentation

The writer observed teacher and student use of the Internet for a two-week period. During this observation, one teacher and no student accessed the Internet. Four teachers attempted to use the Internet during this time, but could not get an on-line connection.

According to a survey given to all the teachers in the writer's school (Appendix A) none of the 41 teachers had any formal Internet training. Ten did not know how to access the Internet and seven had no knowledge of how it worked and were apprehensive about using it in the classroom.

The survey also indicated that 37 out of 41 teachers needed guidance on how to incorporate the Internet into the classroom. Forty out of 41 teachers were concerned with the amount of time needed to surf the Internet and the added preparation time needed to incorporate this material into the curriculum.

Of the 41 teachers surveyed, 25 did not know how to do a search on the Internet and locate appropriate sites for classroom use. They stated that they did not know how to find information that would be useful to them and their students.

The survey also verified that 37 out of 41 teachers wanted their students to access the Internet for information retrieval. All 41 teachers feared that students would access objectionable sites while they were searching the Internet.

Twelve of the 41 teachers have Internet access at home, but only one of the 12 used it to augment the curriculum. The others used their home Internet for non-school purposes.

The writer questioned the fourth and fifth graders about Internet use during their regularly scheduled library time. None of the students had been on the Internet in the classrooms, but were very anxious to get on the "chat lines." They seemed to think this was the basic purpose of the Internet. When the writer told them that they would be using the Internet for information retrieval, not for talking on the "chat lines", the students were disillusioned about the training. They could not imagine how the Internet could be used as a help to find information to complete a classroom project.

When they were further questioned, only 20% of the 250 fourth and fifth graders had been on the Internet outside of school. The remainder of the students had very little knowledge of the Internet. The knowledge that they did have was negative, such as accession to pornographic sites. The writer assured them that the Internet has many more benefits than the negatives portrayed in the media.

Causative Analysis

The problem of teachers and students not using the Internet for curricular augmentation and information retrieval consisted of many elements. One element was the lack of availability. One library connection was not sufficient for teacher and student use. The district recognized this problem and has added high-speed

T-1connection lines at all schools. As of November 15, 1997, all classrooms have Internet access, thus alleviating the connection problem.

Another element was that the district had no established guidelines and policies governing Internet use. According to the mission and vision statements, the teachers were to incorporate the Internet into the curriculum. However, the district did not provide any directives as to how they were to achieve this goal. The teachers were hesitant to use the Internet for curriculum augmentation without district guidance, and thus they were missing out on this valuable educational resource.

The teachers in the writer's school had no formal training on Internet use. According to the survey, 25 out of 41 teachers (Appendix A) did not know how to do a search on the Internet and access appropriate sites. When the writer questioned the teachers about using the Internet, all 41 wanted to be trained to use the Internet. Forty out of 41 were concerned with (a) the amount of planning time needed to "surf the net" and, (b) the additional time that would be necessary to incorporate this material into the curriculum.

The teachers wanted their students to also use the Internet in the classroom, but they were concerned with the objectionable sites. The fear was that students would access these sites and they would be liable for their students' accession. Until the teachers were assured that the students would not be able to access objectionable sites because of filtering systems, they remained hesitant to allow their students on the Internet.

Relationship of the Problem to the Literature

A review of the literature suggested that others have been concerned with the lack of Internet use by teachers and students. Hooney and McMillan (1994) agreed that the Internet is not utilized by most K-12 teachers. The teachers are not integrating the Internet into the curriculum, resulting in their students also not using the Internet in the classroom (Anderson, B., 1995; Devitt, 1997; Poole, Blanchard

& Hale, 1995). Student access to the Internet is limited within the elementary and secondary schools, depriving them of the greatest technology available (Carmona, 1995; Novelli, 1997). In order for teachers to make effective use of the Internet, the district must provide sufficient hardware and software, faculty training on its use, specific teaching materials, and suggestions on curricular integration (Maddux, 1994; Valauskas & Ertel, 1996).

There needs to be a paradigm shift regarding instruction methods before the Internet can be successfully integrated into the curriculum (Anderson, B., 1995). Teachers and students must become critical consumers of the Internet resources for effective and efficient use, since mere availability does not mean access and use (Maddux, 1994). Roberts (1996) stated that all technology, especially the Internet, must be infused into our schools to put into effect the Goals 2000, as initiated by President Clinton in the Educate America Act (One Hundred Third Congress of the United States of America, 1994), to make our students ready to function in the 21st century.

An effective utilization policy, consisting of the following elements, should be put into effect to ensure proper usage of the Internet (Futoran, Schofield & Eurich-Fulcer, 1995):

1. Students, parents, and teachers must sign acceptable use policies.
2. Training, provided by the schools, must include appropriate conduct required while on the Internet.
3. Management policies regarding student accession of questionable, inappropriate, or pornographic materials that are available via the Internet must be in place before students access the Internet.

The literature provides the following support for lack of Internet use by teachers:

1. Only 4% of the teachers have access and only 22% have any working knowledge of the Internet according to a 1993 survey conducted by the National Education Association (NEA), (Hooney & McMillan, 1994).

2. Documentation of a study conducted by the Center for Children and Technology (CCT), indicated that teachers with 10 plus years experience were more likely to use the Internet than those less experienced, 83% to 57% (Hooney & McMillan, 1994).

3. Teachers with master's degrees were more technologically literate than those teachers with less education, 76% to 46% (Hooney & McMillan, 1994).

4. Anderson, B., (1995) stated that the majority of teachers surveyed said the only technology they needed was the copier, not the Internet.

5. Successful Internet implementation is dependent upon providing a training program for the teachers that includes active involvement in the planning and learning process (Hert, 1994).

The literature review revealed many differing main reasons why teachers did not use the Internet in the classroom. These differing main reasons were fear, inadequate access, lack of proper training and follow-up support, no set curricular guidelines, no time allotted for Internet use, frustration, and fear of student accession to objectionable sites.

Fear of using the Internet cannot be alleviated without proper training and follow-up support, curricular guidelines, and district policies (Baule & Lyons, 1995; Devitt, 1997; Killian, 1994; Lovely, 1997). Killian (1994) further stated that teachers are afraid of using the Internet and will not use it until their fears had been addressed and alleviated. This fear of the Internet limits student use, depriving them of this great learning tool (Carmona, 1995; Milheim, 1997; Novelli, 1997).

Lack of proper, on-going training and support are additional "main reasons" for teachers not using the Internet (Baule & Lyons, 1995; Lovely, 1997; Milheim , 1997). If teachers are not provided with proper, on-going training and support

mechanisms, they cannot become proficient in Internet use and will not integrate it into the curriculum (Black, L., Klingenstein, K., & Songer, N., 1995a). Without constant encouragement and on-going support, Internet training is a waste (Lovely, 1997; McFadden & Johnson, 1993), and serves no curricular purpose with no long-term benefits for teachers and students (Anderson, B., 1995; Maddux, 1994). Most administrators focus on connectivity, not on the support resources, such as technical, training, and curriculum (Maddux, 1994).

According to Black, et al., (1995a), the " main reason" for Internet integration failure is the lack of time needed to practice what has been taught, no time for reflection of its implications and power, and no time to implement it into the classroom. Insufficient time to explore and become proficient causes frustration and non-use (Anderson, B., 1995). Not enough time in the day to properly access the Internet, find the information needed, and incorporate this information into the curriculum frustrates many teachers into non-use (Rogan, 1996).

Another "main reason" for teachers not using the Internet is the lack of a paradigm shift from the traditional teaching method to a more collaborative, engaging method where students determine their own learning (Killian, 1994). The teachers can no longer be the "sage on the stage", the portrayer of all knowledge. This traditional teaching attitude does not allow the students to decide what they want to learn, thus becoming a key inhibitor to successful Internet integration in the classroom (Anderson, D.K., 1995). Killian (1994) believed that teachers' psychological need for control does not allow students to design their own curriculum and become partners in their education with the available Internet resources.

Student accession to objectionable sites is another "main reason" teachers do not use the Internet. Lack of censorship and possible accession of objectionable sites is a great concern for the classroom teacher (Maddux, 1994). Teachers find it safer

and easier to use the textbook than deal with the objectionable content on the Internet (Dyrli, 1996).

Chapter III: Anticipated Outcome and Evaluation Instruments

Goals and Expectations

The overall goal of this practicum was to assure that teachers and students would use the Internet for curricular augmentation, classroom research, projects and information retrieval. They would utilize this valuable resource to locate current and relevant information needed for curricular enrichment.

Expected Outcomes

The following outcomes were projected for this practicum:

1. Thirty out of the 41 teachers will incorporate Internet resources into their lesson plans four times a month during the implementation period.

2. By the end of the implementation period, 125 of the 250 fourth and fifth graders will demonstrate basic Internet knowledge through observation and a completion test with at least 80% accuracy.

3. By the end of the implementation period, 125 of the 250 fourth and fifth graders, will locate information about a specific topic and use this information to complete a worksheet with a minimum of 80% accuracy.

4. By the end of the implementation period, 20 of the selected class of 25 students will demonstrate their information retrieval skills on the Internet by locating information needed to complete a three-page research assignment.

5. By the end of the implementation period, 125 of the 250 fourth and fifth graders will have accessed the Internet at least four times a month for classroom projects or research assignments.

Measurements of Outcomes

The expected outcomes of this practicum were measured differently according to each outcome. Surveys, observations, interviews, completion tests, and logs were

used to assess progress throughout the practicum. These various measurement tools were then analyzed to verify the achievement of each outcome.

Outcome 1. To determine if 30 out of the 41 teachers incorporate the Internet into their lesson plans at least four times a month, the teachers logged the dates they accessed the Internet, the topic researched, and the sites found. This log was included in their Internet notebook given during the implementation period. The writer checked the logs every month and recorded the data (see Appendix B) to verify their usage.

Outcome 2. Students demonstrated basic Internet knowledge through observation and a completion test. The students confirmed basic Internet knowledge by being able to access the Internet, do a search, and send e-mail when they were individually observed by the writer (see Appendix G). The students were given a completion test to determine basic knowledge of the Internet (see Appendix C). These results were analyzed and documented to verify that 125 of the 250 fourth and fifth graders exhibited basic Internet knowledge.

Outcome 3. The students located information about a specific topic on the Internet and then used this information to complete a worksheet (see Appendix D). Their work was corrected, recorded, and analyzed by the writer to establish if 125 of the 250 fourth and fifth graders could locate information on the Internet.

Outcome 4. The students demonstrated their information retrieval skills by completing a three-page research paper on any topic with information found on the Internet. They cited at least three Internet references, using three different search engines and then attached this information to their research paper (see Appendix E). The writer examined the research paper and analyzed the requirement checklist to determine if 20 of the 25 fifth grade students had met this outcome (see Appendix D).

Outcome 5. Students were to use the Internet at least four times a month for classroom projects and research assignments. The data recorded in their usage log was used to determine if 125 of the 250 fourth and fifth graders met this outcome (see Appendix F).

Chapter IV: Solution Strategy

Statement of Problem

The teachers and the students in the writer's school did not use the Internet to locate current and relevant information.

Discussion and Evaluation of Solutions:

The writer reviewed educational research literature to glean the possible solutions to the identified problem. The reviewed literature focused on proper training, on-going support, and acceptable use policies guiding Internet use.

The solutions suggested that proper training, ongoing support, policies and guidelines were necessary to ensure responsible and effective Internet use. Policies guiding Internet use must be established before training teachers and students (Black, et al., 1995a; Frazier, 1995; Futoran, et al., 1995).

Many training tips were suggested by the literature review. Baule and Lyons (1995) and Makulowich (1994) stated that teachers feel more comfortable being trained in groups and working in dyads when first experiencing the Internet. Baule and Lyons (1995) and Makulowich (1994) also agreed on the following training tips: (a) set goals and objectives before training, (b) individualize training to fulfill the needs of individual trainees, (c) initiate a progressive and continuous training schedule, (d) focus on the learner and their expectations for the training, (e) reinforce all information presented, (f) make the training sessions fun as well as informative, (g) create interactive sessions where trainees are allowed hands-on experiences, (h) offer shortcuts, tips and tricks, (i) supplement training with take-home materials, and (j) inform trainees that the trainer is available for ongoing and continual support after the training session.

An additional training tip offered by many researchers stated the need for an up-to-date comprehensive troubleshooting manual to ensure usage once the training has ended (Futoran, et al., 1995; Lovely, 1997; Speckien, 1996.)

In addition to the troubleshooting manual, Lovely (1997) suggested training students to help teachers with basic technical problems. The trained students provide basic technical support for the teachers during and after the training (Baule & Lyons, 1995). A learning partnership is formed when the students and teachers work together solving technical problems, making the students a valuable asset to the teachers (Black, et al., 1995a).

Day and Armstrong (1996) suggested that proper search techniques, accessing relevant sites, and effective use of e-mail must also be included in Internet training. The teachers must then be made aware of how these resources on the Internet can be used in their educational settings to augment the curriculum (Milheim, 1997). Harris (1995b) and Scott (1996) stated that the communications (e-mail and LISTSERVS) aspect makes the Internet an exciting and valuable asset to the curriculum.

Harris (1996c) stated that using Internet-based problem solving projects is a powerful avenue in promoting higher level thinking skills that work in tandem with individual curriculum, where the process of learning-based curriculum integration is emphasized, not the technologies. These problem-solving projects promote a positive telecomputing experience for the teachers and students because they are adapted to the students' individual learning needs (Harris, 1995c).

Teachers and students must take control of learning and the Internet and they must reinvent what goes on in the classroom (Griest, 1996), making it imperative that both use this technology effectively. The role of the teacher and student must be one of co-learner and facilitator to put the vast resources available on the Internet to effective use (Bell, 1996; Rose, 1996).

According to the research, the establishment of set policies and guidelines, a continuous training program with ongoing support, an up-to-date troubleshooting manual, and directives on how to incorporate the Internet into the curriculum make the Internet a valuable resource to both teacher and student. They are able to use the

Internet for curricular augmentation, information retrieval, completion of classroom projects and research.

Description of Selected Solutions

The writer is prepared to do a combination of solutions suggested by the literature review to ensure Internet usage by teachers and students. All solutions are viable and can be used in the writer's school with minimal modification. An acceptable use policy for both teacher and student will be devised that will set a code of conduct and ensured awareness of safety issues (Black, et al., 1995a; Frazier, 1995).

The writer will also conduct approved Internet training sessions, supplemented by monthly progressive training sessions for all teachers. Handouts offering suggestions, tips, tricks, and reviews will be provided after each training session. For further reinforcement, the writer will provide constant, ongoing technical and curricular support throughout the year.

The writer will devise a comprehensive up-to-date troubleshooting manual to be used as a ready reference to answer basic Internet technical questions. A fifth grade class will be trained as student mentors to assist the teachers with basic Internet technical questions, as well as adding additional technical support.

The fourth and fifth graders will be trained in effective Internet use. One fifth grade class will receive in-depth instruction on how to use the Internet for information retrieval. Research strategies to complete a three-page research paper will help hone the learned skills.

The writer will continually send out newsletters and e-mail suggestion tips on established web sites, journal articles, and pertinent information to keep the teachers and students informed throughout the implementation. Established web sites will be sent via the school district's home web page and e-mail system to ensure safe student usage of the Internet both at home and school.

The writer will survey (see Appendix B) the teachers every three months to poll their reactions to the Internet training and its usage. These polls will be used as an evaluation tool to determine the success of the program after the eighth month.

The writer has chosen lack of Internet usage by teachers and students for her practicum for the following reasons:

a. The writer has total autonomy over the process and expected outcomes.
b. The writer will be able to implement the program within an eight month time frame.
c. The writer has the support of the administration to implement this program.
d. Most importantly, the writer believes that this practicum will positively impact Internet usage among the teachers and the students for information retrieval.

Report of Action Taken

The practicum implementation began when the writer met with the Director of Technology to discuss the need for a district-wide acceptable use policy (AUP). The director concurred that this policy was needed to protect the district, the teachers, and the students when they used the Internet in a school setting.

During the same week, the teachers were informed at a faculty meeting, that they would be required to take a three-hour training program before they would be allowed to go on the Internet in their classrooms. The training was discussed, along with the plans for implementation, the goals, and the expected outcomes from this mandated Internet training.

The writer met with the Director of Technology and the technology committee to set the guidelines for the acceptable use policy (AUP). Various AUP's were perused so that all committee members could familiarize themselves with existing policies from the surrounding school districts. The committee suggested having legal counsel before finalization of the plan to ensure that all legal aspects were covered by the developed policy.

The AUP's were developed over the next three weeks and distributed to all teachers after legal counsel agreed to the language written by the technology committee. Both teachers and students were required to sign and submit the policies to their individual schools. Filed copies were filed and recorded by the school secretaries. A record of who signed was then passed out to all teachers and a copy kept by the writer in the Learning Center.

After the AUP was developed, signed and distributed to teachers and students, the teachers were reminded that they had to complete the mandated three-hour Internet training session. Since the writer's school was not yet equipped to handle large-group Internet training, the teachers were notified that all training had to be scheduled at the Central administration building after school hours or on Saturdays.

The teachers were informed that the writer would e-mail tips, suggestions, new ideas regarding the Internet. An online question and answer was set up via e-mail in which the teachers and the writer could respond to Internet concerns and topics throughout the practicum. This correspondence was recorded to log the types of questions, concerns, and number of times the teachers used e-mail to communicate the writer concerning the Internet.

The teachers, students, and parents were reminded that they would be continuously informed of recommended web sites, Internet searching tips, Internet safety precautions, and the AUP via the school newspaper and the home web page during the practicum implementation.

The next step in implementation was the mandated teacher training on the Internet (Burke, 1996). To accommodate large-group presentations, a video adapter was hooked up to the presenter's computer allowing all teachers to view the presenter's screen. The three-hour session was broken down into two parts. The first two hours were lecture, and the third hour allowed the teachers to apply the learned material.

Information presented during the lecture covered (a) a brief overview of the Internet and how it works (Eddings, 1994) (b) an explanation of the world wide web and Netscape Navigator (Ernst, 1995; Kent, 1995), (c) step-by-step instructions on how to connect via T-1 lines, (d) description of tool and task bars, (e) a detailed syllabus of the Internet training with a "cheat sheet", (f) brief explanations of search engines, (g) instructions on how to do a basic search, (h) an explanation of hypertext link, (i) instructions on sending and receiving e-mail, (j) netiquette guidelines, and (k) AUP's, their importance and ramifications for misuse.

After the lecture, the teachers were given an hour to apply the presented material. A question and answer session was then conducted. Materials, troubleshooting guides, established web sites that related to the curriculum (Dyrli, 1996; Hoffman, n.d.; Kelly & Wiebe, 1994; Stafford, 1996), and suggested lesson plans to integrate computer applications into the classroom (Microsoft, 1997) were passed out to the teachers at the end of the session.

The writer visited the classrooms to see how teachers utilized the Internet after they completed the mandated Internet training. Suggestions and continuous support were given to the teachers on how to implement the Internet into their curriculum both in person and online.

Memos to all teachers were sent out on a continual basis reminding them of the important points and providing additional browser tips and secrets for using Netscape (Ryan, 1997). These tips included connecting using a password, sending and receiving e-mail, conducting an effective search using a search engine, shortcuts for faster navigation, and how to tell if information is accurate (Chapman, 1997).

Suggestions on using the Internet for curricular augmentation with listings of authorized web sites for student accession were given online. This forced the teachers to access their e-mail and then print out the information. Once they were accustomed to checking their e-mail, the writer had a more accurate log of which

teachers used the Internet for curricular augmentation. A diary was kept of who logged onto the Internet and the sites used for lesson plans during each month of the implementation.

Throughout the practicum, the writer visited all classrooms to address any teacher needs and concerns. At times, these needs and concerns seemed common to all the teachers, so the writer e-mailed suggestions and tips to answer the questions brought up during the classroom visits.

At the end of the second month, the fifth grade team chose 10 non-band students to be trained as technical assistants to aid teachers in basic troubleshooting. The writer met with these students to set up a training schedule to coincide with their study halls. Initially, this training was scheduled twice a week while their fellow students were in full band. Due to a conflict in scheduling, this training was not able to be conducted regularly. The writer abandoned this idea after the third month for training students to serve as technical assistants worked in theory, but not in practice.

During the third month, the writer started basic Internet training with the fourth and the fifth graders during their regularly scheduled library class. A syllabus was handed out to all students so they could get a brief overview of the training, as well as an in-depth description of what would be involved of them for the next four months. A brief explanation of the work required for the course was presented after the students were handed the syllabus.

Then the importance of the AUP's was discussed, reiterating the fact that no student would be allowed on the Internet if this document was not signed and filed in the library. Since the AUP was written in legal language, the students could not understand the content. The writer decided that a non-legal AUP must be written and then handed out to the students after the district policy had been signed. The district AUP was far too technical for the elementary student, and none of the fourth

and fifth graders could understand it as written. A simplified version had to be devised for the elementary student.

The writer proposed this idea to the technology committee and they agreed that a simplified version of the district AUP had to be written and adopted district-wide. The writer presented the simplified version she had re-written. The technology committee assigned a writing committee to standardize the student version of the AUP. After this AUP version has board approval, brochures and posters will be printed to reflect this simplified language. The posters will be posted by all student computers so they can constantly be reminded of the Internet rules.

After the basics of the Internet were covered, the fourth and fifth graders were instructed on how to send and receive e-mail. Each class had to compose an e-mail, send it, and respond to it according to the AUP guidelines.

Due to conflicts, many of the teacher training sessions had to be rescheduled throughout the practicum implementation. The writer found that it was more convenient to teach specific topics on a one-to-one basis than to try and schedule a group training.

During the third and fourth months, the teachers were trained on conducting effective searches, such as Boolean, key word, and on word truncation, and results control. Internet guidelines, helpful hints, and shortcuts (Heim, Kremers, & Lasky, 1997) were passed out to all the teachers, even though they were not all taught by the writer. The writer continued to e-mail the teachers advising them of upcoming training sessions, helpful Internet facts and web sites that augmented the curriculum.

The fourth and fifth graders were trained in (a) the function of the Internet, (b) the World Wide Web (WWW), (c) accessing and recording web sites, (d) how to do an effective search, (e) what specific search engine to use to locate the type of current and relevant information needed (Goldstone & Perley, 1996; Harris, 1995a; Pederssen & Moss, 1995), (f) how to determine the validity of the information

accessed on the Internet needed for classroom projects and research (Chapman, 1997), (g) basic strokes for fast navigation, (h) hypertext links, (i) tool and task bars, and (j) specifics of Netscape Navigator.

At the end of the fourth month, the writer began working with the selected fifth grade group during their reading class. Twice a week for the duration of the practicum, this class was given in-depth instruction on information retrieval and doing research via the Internet. The first session consisted of an explanation of the training and the research paper that would be due at the end. The fifth grade teacher and the writer worked together to formulate the guidelines for the paper. It had to be at least three pages in length, three search engines had to be used for the information, the three references had to be correctly cited and attached to the paper (see Appendix E). The teacher insisted that the paper also be presented in paragraph format with good sentence structure and punctuation. The paper must also exhibit prewriting and editing techniques before it was to be graded, for this research paper was a major portion of the students' reading grade for that quarter.

The teachers were continually reminded to keep logging their Internet sites that they used for curricular augmentation. The writer examined these logs monthly to determine how often the teachers accessed the Internet and what sites they used. The writer then gave these sites to all teachers so they did not have to re-locate established sites.

Reinforcement of basic Internet skills and searching techniques continued throughout the practicum for the fourth and the fifth graders. The writer found that a weekly review of the basics reinforced student usage of the Internet in the classroom. This reinforcement was necessary to ensure that the students would access the Internet at least four times a month for classroom projects and research. They had to be constantly reminded to log their usage, for the students logged onto the Internet, but failed to record their sites unless they were constantly reminded to do so.

The writer also reminded teachers to record their Internet sites via e-mail. Many teachers told me how impressed they were with the sites that they were using for curricular augmentation, but they, too failed to record their sites. Weekly non-threatening reminders to the teachers became necessary throughout the implementation period. The writer recorded the teachers' sites if theses sites were sent via e-mail. They were added to the monthly record the teachers handed in. Too often the teachers informed fellow teachers of the visited sites online, but then failed to include them in their own logs. This problem was alleviated by the writer printing out all online correspondence and adding these sites to the teachers' logs.

During the end of the fourth month and the beginning of the fifth month, the writer reviewed online information retrieval with the fifth grade class. This included conducting a search, locating and evaluating the information found on the Internet. They were instructed how to determine if information was credible, how to change fonts, how to open files on a hard disk, and search documents with Netscape Navigator.

The teachers were trained to create bookmarks and smartmarks, reviewed shortcuts, conducted more intense searches using a variety of search engines, searched the yellowpages on the WWW, located Internet resources, and were introduced to file transfer protocol (FTP), Archie and Gopher, and problem solving techniques during the fifth month training. They were given handouts of proven classroom activities that include the problem solving method that included tips and activity structures to implement this technique for future curricular activities.

The writer recorded how many teachers had used the Internet for curricular augmentation this fifth month. The classrooms were visited to offer support for their Internet activities.

The fourth and fifth graders were also reminded to continue recording their Internet sites. They were reminded of this recording weekly while in library class.

During the sixth month, the teachers were trained on how to integrate the Internet into the present curriculum. Web sites, articles, and pamphlets were distributed to the teachers concerning curricular augmentation.

Search techniques were re-inforced with the fifth graders to find web sites. The fifth graders then decided upon the topic of their paper and proceeded to search the Internet for sites to use as references.

The sixth and seventh month were spent helping the fifth graders find information for their research paper, recording the sites, writing the paper, and listing their resources in the established bibliographic form. The writer spent approximately two hours per week working with the fifth grade class and their teacher to finish this project. Computers were used in the classroom and the library so the students could do multiple searches on the Internet, not having to wait until one student finished before another could begin. A total of eight computers were used, and the writer found that even this number was not always sufficient.

Throughout the practicum, the writer was reinforcing basic Internet skills with all fourth and fifth graders. This was done every week during their library time. They were tested on basic Internet skills during the seventh and the eighth month. During one session the students were tested on their Internet skills. If they did not finish during one library time, they were allowed to complete the test the next time. After the test were taken and recorded, the writer gave out the El Nino worksheet. Due to time constraints and too few computers in the library, it took two months for all the fourth and fifth graders to complete this worksheet.

The teachers were polled about the Internet during the eighth month. Most were concerned about the amount of time needed to search the Internet for information. Wonderful information was on the Internet that was very useful for curricular augmentation, but there was not enough time to do an effective search. The teachers were also concerned that the training could not stop once the practicum was finished.

None of the teachers thought themselves to be an expert on the Internet and all expressed the need for constant, ongoing training throughout their teaching career.

The fifth graders research papers were graded and handed back during the last week of implementation. The fourth and fifth grade logs were checked and documented as were the teachers' logs. All data was compiled to determine how often teachers and students used the Internet during the practicum.

The writer complied all data to determine (a) how often the teachers accessed the Internet for curricular augmentation per month, (b) if the fourth and the fifth graders used the Internet at least four times a month for classroom projects and research, (c) how many fourth and fifth graders successfully completed the Internet checklist and worksheet, and (d) if all the fifth graders successfully completed their research project.

The writer had planned to have weekly training sessions with the teachers. As the practicum developed, it became evident that this training would overload both the teachers and the writer. It was decided to restrict the training sessions and concentrate more on sending hints online, passing out pamphlets, tips, and suggestions, publishing web sites in the school newspaper, rather than having large group instruction. The writer found it more beneficial to train one or more teachers in the classroom on demand. This seemed less intrusive and stressful on the teachers' overwhelming classload.

Chapter V: Results

The problem that existed in the writer's school was that the teachers and the students did not use the Internet to locate current and relevant information. The teachers and the students were not utilizing the Internet to locate the information that was needed for curricular enhancement. The students were not accessing the Internet to find information needed for research and for the completion of their classroom projects. They had to rely upon out-dated library books and an inadequate electronic encyclopedia for their information.

The overall goal of this practicum was to assure that teachers and students would use the Internet for curricular augmentation, classroom research, projects and information retrieval. They would use this valuable resource to locate the current and relevant information that was needed for curricular enhancement.

The following outcomes were projected for this practicum.

1. Thirty out of the 41 teachers will incorporate Internet resources into their lesson plans four times a month during the implementation period.

This outcome was met.

Thirty-two teachers were incorporating the Internet into their lesson plans. The writer used their Internet logs to document usage.

2. By the end of the implementation period, 125 of the 250 fourth and fifth graders will demonstrate basic Internet knowledge through observation and a completion test with at least 80% accuracy.

This outcome was met.

More than 76% of the students, 192 out of 250, successfully demonstrated basic Internet knowledge. To document this outcome, the writer observed each student using the Internet and recorded the results. Approximately 84%, or 213 out of the 250 students scored an 80% or better on the completion test. These test results were also placed in the student's Internet folder.

3. By the end of the implementation period, 125 of the 250 fourth and fifth graders will locate information about a specific topic and use this information to complete a worksheet with a minimum of 80% accuracy.

This outcome was met.

Approximately 81%, 203 out of 250, of the students completed the worksheet with a minimum of 80% accuracy. The writer recorded the test results in their folders.

4. By the end of the implementation period, 20 of the selected class of 25 students will demonstrate their information retrieval skills on the Internet by locating information needed to complete a three-page research assignment.

This outcome was met.

All of the 25 students successfully completed their research project. The writer used the criterion in the research requirement guidelines and recorded these results in their portfolio.

5. By the end of the implementation period, 125 of the 250 fourth and fifth graders will have accessed the Internet at least four times a month for classroom projects or research assignments.

This outcome was met.

The writer collected and recorded each student's log to attest that 125 of the 250 students accessed the Internet four times a month.

Discussion

The overall goal of this practicum, to assure that both teachers and students would use the Internet for curricular augmentation, classroom research, projects and information retrieval, was met. The Internet was used regularly by both the teachers and students throughout the implementation period. The writer found that all the anticipated outcomes were reasonable and that they were doable within the eight month implementation period.

The first outcome, 30 out of 41 teachers incorporating the Internet into their lesson plans at least four times a month, forced the teacher to use the Internet on a regular basis. The recording made them aware of how often they actually did use the Internet in the classroom. At first, they were hesitant to record their sites for they thought these sites would be analyzed for content. When the teachers were assured that these sites were simply recorded for usage, their stress level decreased and they began recording sites daily. Most of the teachers were using the Internet on a daily basis by the end of the practicum. These sites were printed out and distributed on a regular basis. The administration also sent out numerous sites to the teachers when they found interesting and useful sites.

The writer found that training the students on the Internet prompted the teachers to use the Internet in the classroom on a regular basis. Even the most apprehensive teacher was more willing to use the Internet after the students in their classes began using the Internet in the library. They felt less threatened after the students showed them how easy it was to search for materials that could be used for research and classroom projects.

When the teachers were surveyed on the practicum, an overwhelming number stated two reasons why they used the Internet throughout the implementation period. First and foremost was the continuous training and support throughout the practicum (Lyons, 1995; Makuloviwich , 1994). Another reason was the handouts and troubleshooting hints given after the training sessions (Futoran, et al., 1995; Lovely, 1997; Speckien, 1996). An added reinforcement was the extensive student training provided by the writer. Many stated that if the students were successful in using the Internet to find useful information, there was no reason that they could not also find this same information.

However, the teachers also indicated that the searches for relevant and current information required a lot of time. Finding the time to use the Internet was the major

concern of all teachers. They were convinced that there was good information on the Internet, but could not always find the time to locate this information.. Because of the time element, the writer gave out tips for proper searching on the Internet (Day & Armstrong, 1996) and gave them print outs of good educational sites found by others that applied to their curriculum (Milheinm, 1997).

The students welcomed the Internet training throughout the practicum implementation. The outcomes involving the students were met with ease. This is not to say it was an easy process training all the fourth and fifth graders on the Internet. The time involvement became a nightmare for the writer. There was a constant battle with scheduling to maintain the calendar plan throughout the implementation. The half hour library time allotted each week per class was not adequate. The writer had to reschedule the classes so that the students would have access to the library computers throughout the day, not just during their regularly scheduled library time. Without this rescheduling, the students would not have been able to complete the Internet basic observation, the test or the worksheet.

The lack of time created and too few computers in the classroom forced the students to continually use the library computers to locate information on the Internet for classroom projects or research assignments. This created another scheduling nightmare among the fourth and fifth graders who were vying for the same library computers.

Teaching the selected fifth grade class to do a research project was the most enjoyable part of the implementation period for the writer. The small number of students, the allocated fifth grade lab, coupled with the library computers during the designated reading time three hours a week was ideal. All students had access to a computer, either in the classroom, or in the library, since there were no other scheduled students working in the library. During this allotted time, both the teacher and the writer were free to help the students throughout this hour period. The stress

levels were kept at a minimum, all students had computer access when needed, and they also had the complete attention of two teachers for immediate help and guidance.

Recommendation

1. Simplify the acceptable use policy (AUP) before Internet training is to begin. Distribute this policy to all students and post it wherever they would be using the Internet. The writer then said to the students if you are still confused what is not an acceptable site on the Internet, "Get off the site if your principal would not be (a) wearing that type of clothing, (b) using that language, or (c) doing that particular behavior or action."

2. The writer would suggest that the Internet training begin with only one grade level and staggering the instruction. This would eliminate the scheduling problems experienced when too many students are trying to finish the same project simultaneously.

3. After the initial teacher training, do not continuously schedule future classes. The teachers in the writer's school became overwhelmed with the amount of classes offered. The writer had to individually train those interested in the offered subjects.

4. The teachers were willing to use the Internet, but time constraints did not allow them to search the Internet thoroughly during their busy school days. Since lack of time to use the Internet was the main concern of the teachers, the writer suggested to the district administration that internal substitutes might be provided one morning a month for teachers to use the Internet for curricular augmentation.

5. Work exclusively with one class and their teacher for intense research and projects. Post their projects where all students and teachers pass constantly, such as in an entrance hallway. This sets the stage for more interest by other classes and their teachers.

Dissemination

The writer has shared the practicum with fellow teachers and administrators. The curriculum director has suggested that the district librarians use this practicum as a basis for their curriculum. Hopefully, this Internet supplement will standardize Internet instruction throughout the district.

Upon the writer's suggestion, the district has adopted a student version of the AUP and pending board approval, this policy will be available in January, 1999. This simplified version is to be handed out to all district students. It will also be posted at all student computer workstations to be used as a reference and a reminder whenever students are on the Internet.

Plans for further dissemination include presenting this practicum at future technology conferences. The writer will also share the results with interested educators and fellow Nova cluster members.

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APPENDIX A

INTERNET SURVEY

INTERNET SURVEY

1. Do you have Internet access at your home?
   _____yes
   _____no

2. If question #1 was "yes", please answer #2. If not, proceed to #3.
   Do you use this Internet access to find information for the present curriculum?
   _____yes
   _____no

3. If Internet was available at school, would you use it to augment the curriculum?
   _____yes
   _____no

4. What are you expectations for Internet access at school? Please list below:

   _____

   _____

   _____

5. What are your concerns with Internet access at school? Please list below:

   _____

   _____

   _____

6. Would you be willing to attend training sessions on the Internet?
   _____yes
   _____no

7. What topics should be covered during this training? Please list below:

   _____ _____

   _____ _____

APPENDIX B

TEACHER INTERNET ACCESS CHART

Teacher Internet Access Chart

NAME_____

GRADE_____

SUBJECT_____

MONTH_____

1. List the dates, topics and sites you accessed the Internet this month.

   date:_____ topic:_____ site:_____

   date:_____ topic:_____ site:_____

   date:_____ topic:_____ site:_____

   date:_____ topic:_____ site:_____

2. Were the sites helpful for your lesson plans?_____

3. Did you incorporate these Internet resources in your lesson plans?_____

APPENDIX C

STUDENT INTERNET QUIZ

STUDENT INTERNET QUIZ

NAME_____

GRADE_____ DATE_____

1. What is the Internet?_____

_____

_____

_____

2. How do you connect to the Internet?_____

3. What is a T-1 line?_____

4. What does WWW stand for?_____

5. What is a search engine?_____

_____

List two of your favorite search engines below:

_____

_____

6. Give 2 examples of good netiquette._____

_____

_____

7. What is a bookmark?_____

8. How do you get back to the previous screen when doing a search?_____

_____

9. How do you get back to the beginning to do another search?_____

_____

10. What is the name of the Internet application we are using at our school?

_____

11. What is e-mail?_____

12. What is an AUP?_____

APPENDIX D

STUDENT WORKSHEET

STUDENT WORKSHEET

1. Do a search on the effects of El Nino?

2. List the site looked up_____.

3. What is El Nino?_____.

4. How, or why, is it affecting our weather?_____

_____.

5. List two effects it has on our Illinois weather?

_____

_____

APPENDIX E

RESEARCH PAPER GUIDELINES/GRADING REQUIREMENTS

Research Paper Guidelines/Grading Requirements

INTERNET RESEARCH PAPER

NAME_____

1. Topic researched_____

2. Attached printed references, minimum three _____yes _____no

3. Minimum of three search engines used _____yes _____no

4. Length of paper-at least three pages _____yes _____no

5. Correctly cited references _____yes _____no

GRADING: Numbers 2 through 5-all "yes" GRADE A

If lower than 2 "yes" GRADE I(incomplete)

APPENDIX F

STUDENT INTERNET USE LOG

Student Internet Use Log

NAME:_____

GRADE:_____

DATES used Internt for classroom projects/research by month:

MONTH:_____

DATES:_____ _____ _____ _____

MONTH:_____

DATES:_____ _____ _____ _____

MONTH:_____

DATES:_____ _____ _____ _____

MONTH:_____

DATES:_____ _____ _____ _____

MONTH:_____

DATES:_____ _____ _____ _____

MONTH:_____

DATES:_____ _____ _____ _____

APPENDIX G

STUDENT INTERNET CHECKLIST

STUDENT INTERNET CHECKLIST

NAME_____

GRADE_____

1. Student can access the Internet without help_____

2. Student can do a search unassisted_____

3. Student can send an e-mail unassisted_____

4. Student can print out materials searched_____

5. Student can respond to an e-mail received_____

If all questions are checked, the log will be inserted in the student's Internet folder

Date completed_____

Student's initial_____

Mrs. Hubbard's initial_____